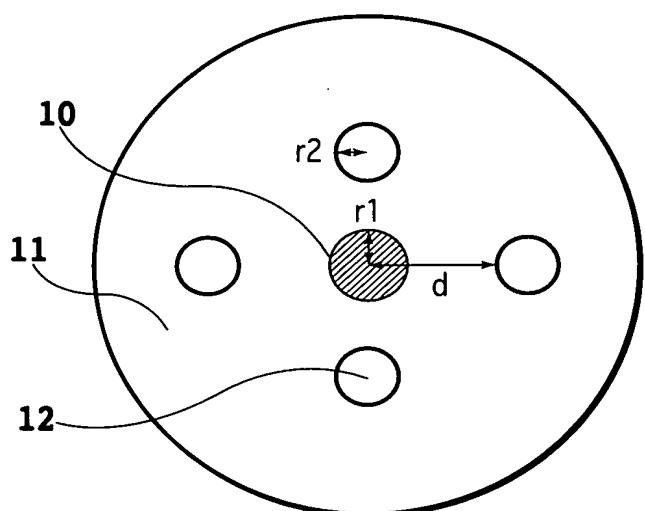
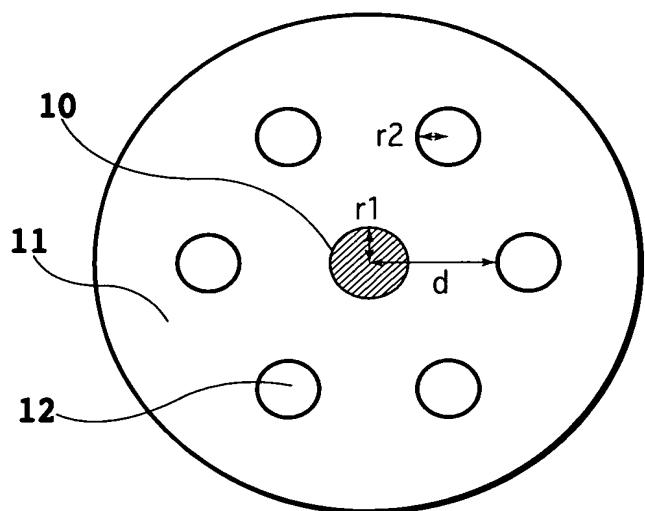
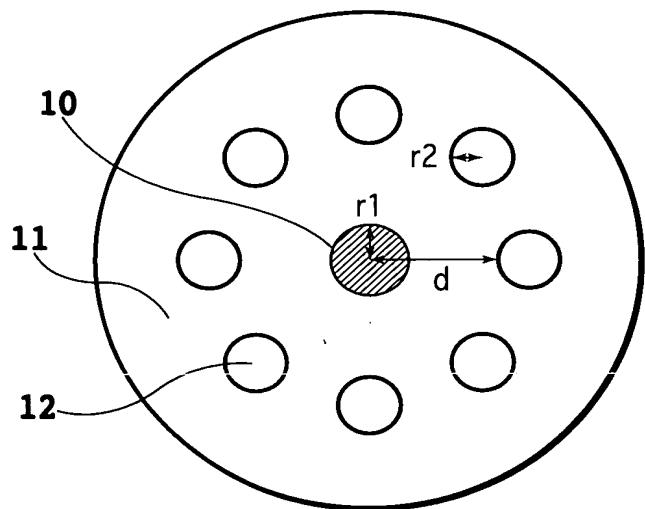
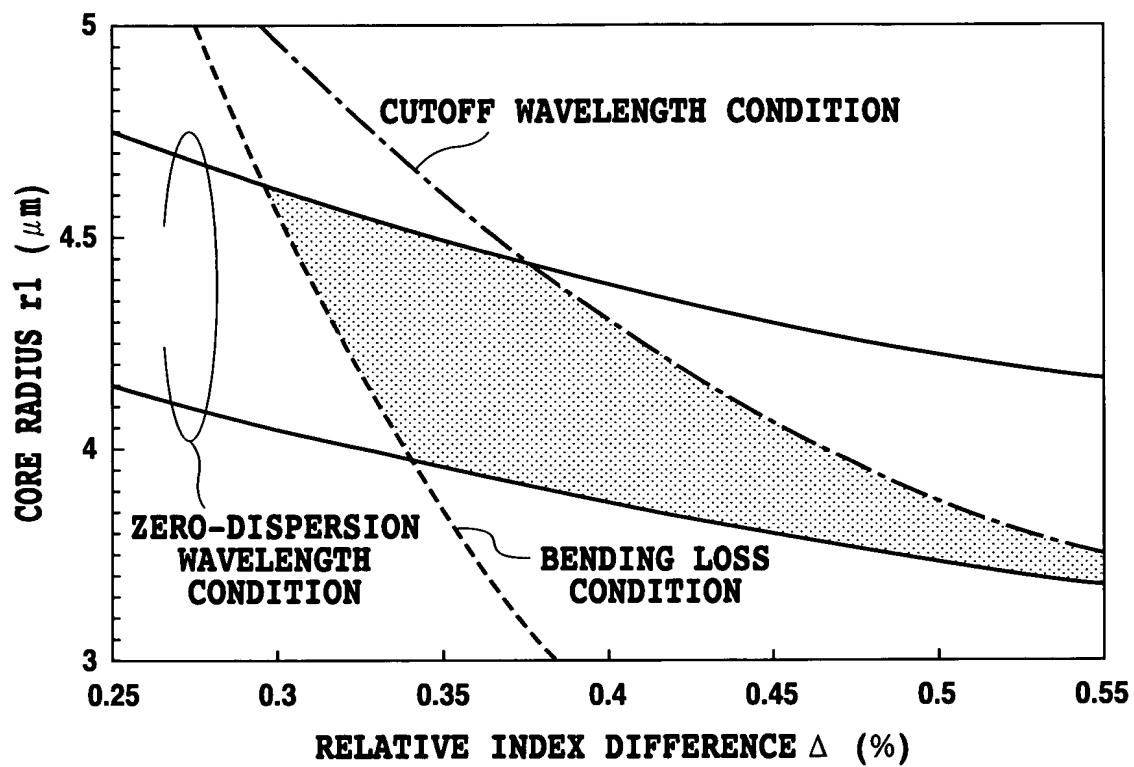


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**FIG.1A****FIG.1B****FIG.1C**

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**FIG.2**  
**PRIOR ART**

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FIG.3A

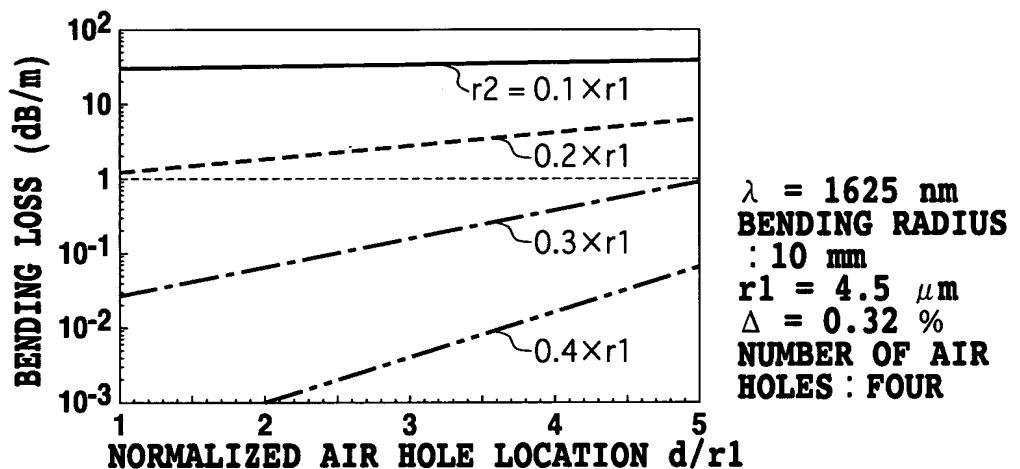


FIG.3B

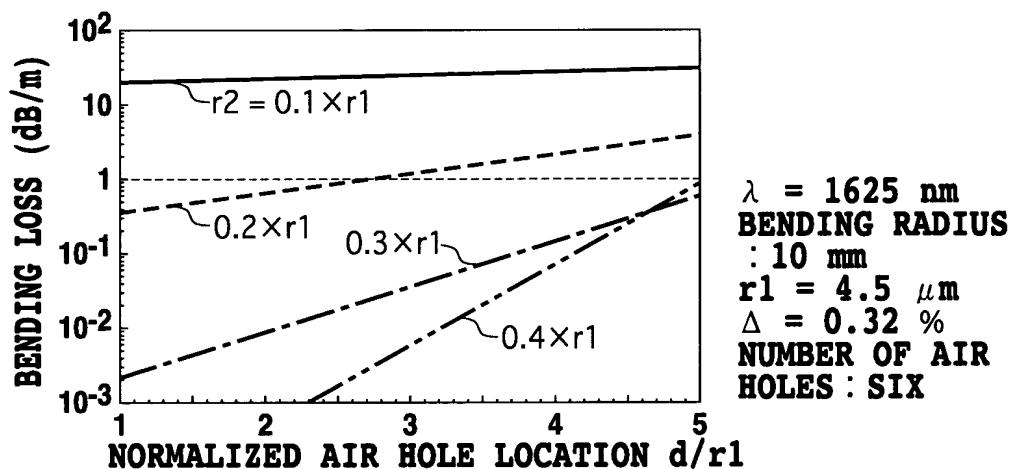
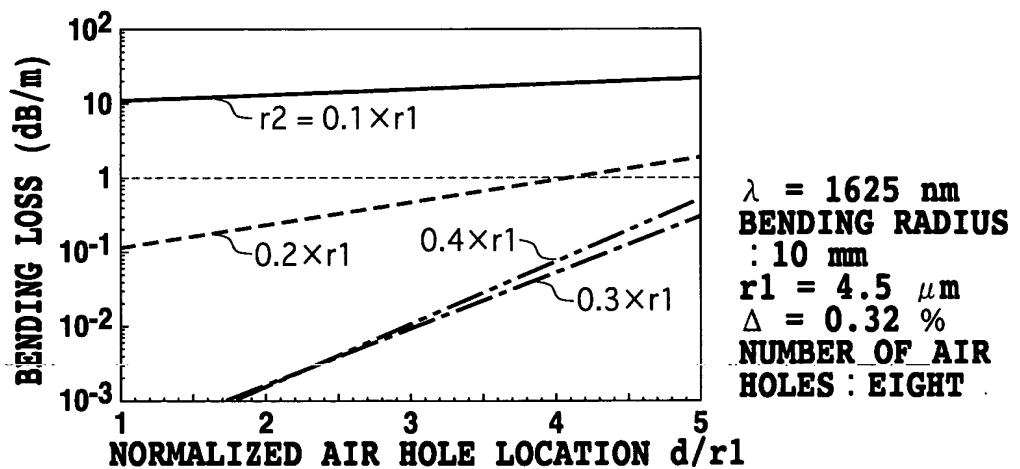
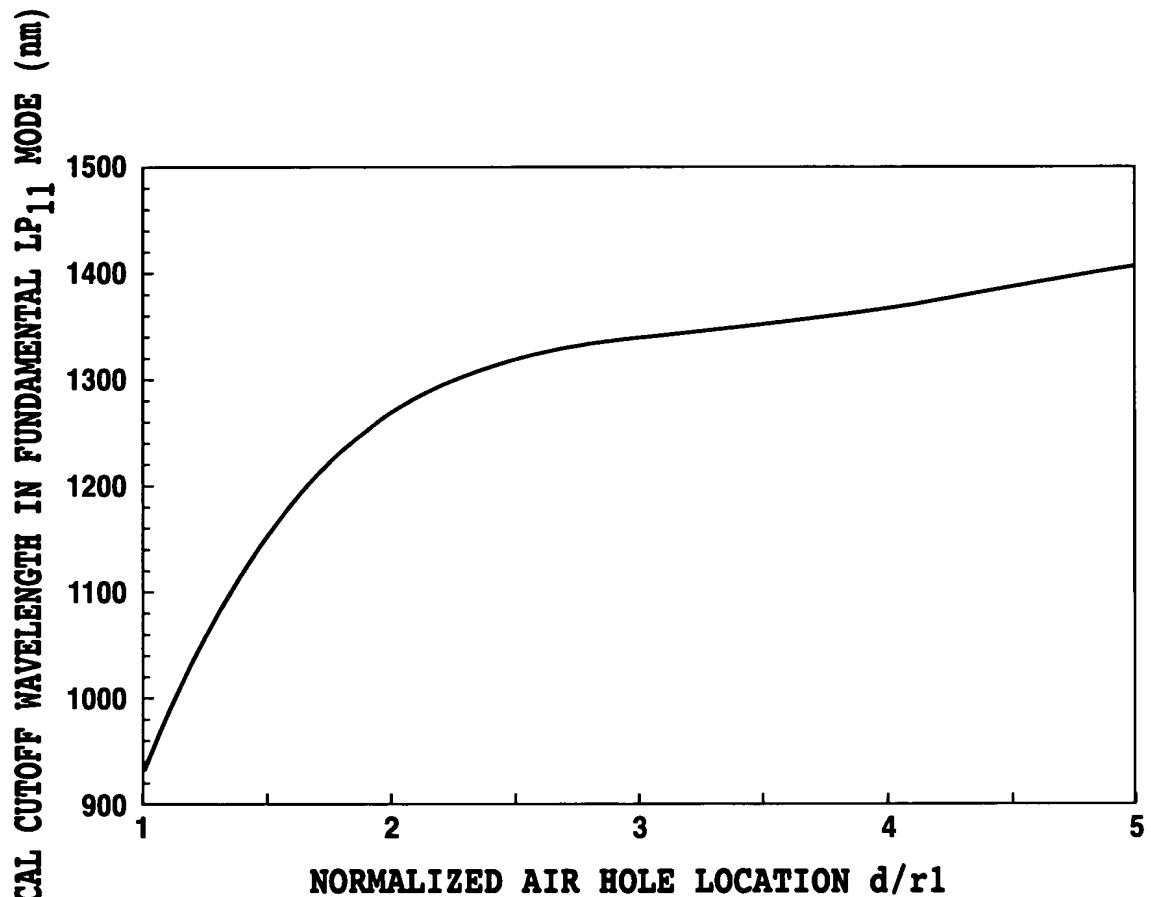


FIG.3C



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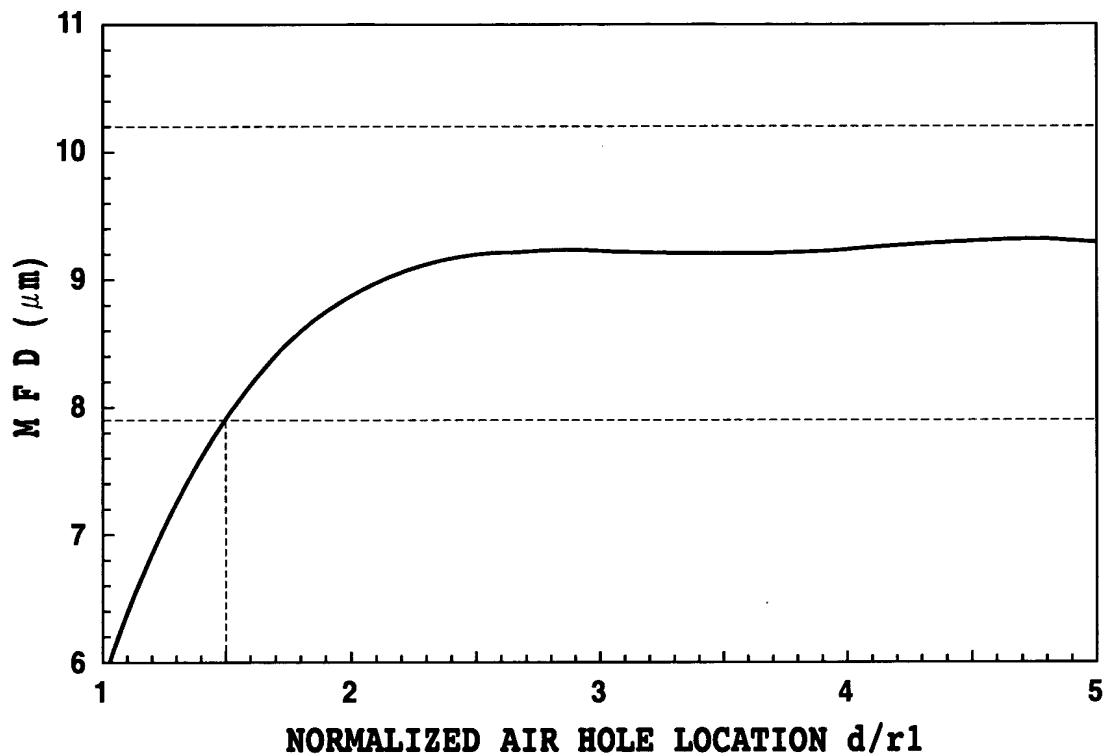


NUMBER OF AIR  
HOLES : EIGHT  
 $r_2 = 0.4 \times r_1$   
 $r_1 = 4.5 \mu\text{m}$   
 $\Delta = 0.32 \%$

FIG.4

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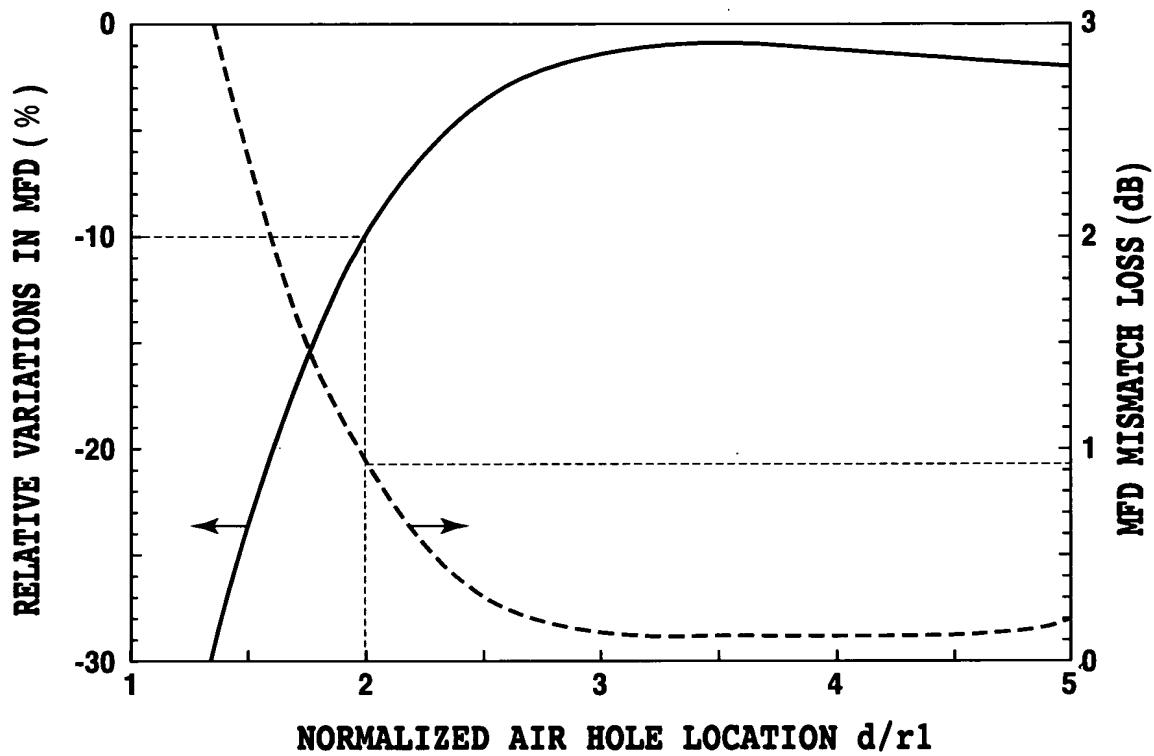
NORMALIZED AIR HOLE LOCATION  $d/r_1$

$\lambda = 1310 \text{ nm}$   
NUMBER OF AIR  
HOLES : EIGHT  
 $r_2 = 0.4 \times r_1$   
 $r_1 = 4.5 \mu\text{m}$   
 $\Delta = 0.32 \%$

FIG.5

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$\lambda = 1625 \text{ nm}$   
NUMBER OF AIR  
HOLES : EIGHT  
 $r_2 = 0.4 \times r_1$   
 $r_1 = 4.5 \mu\text{m}$   
 $\Delta = 0.32 \%$

FIG.6

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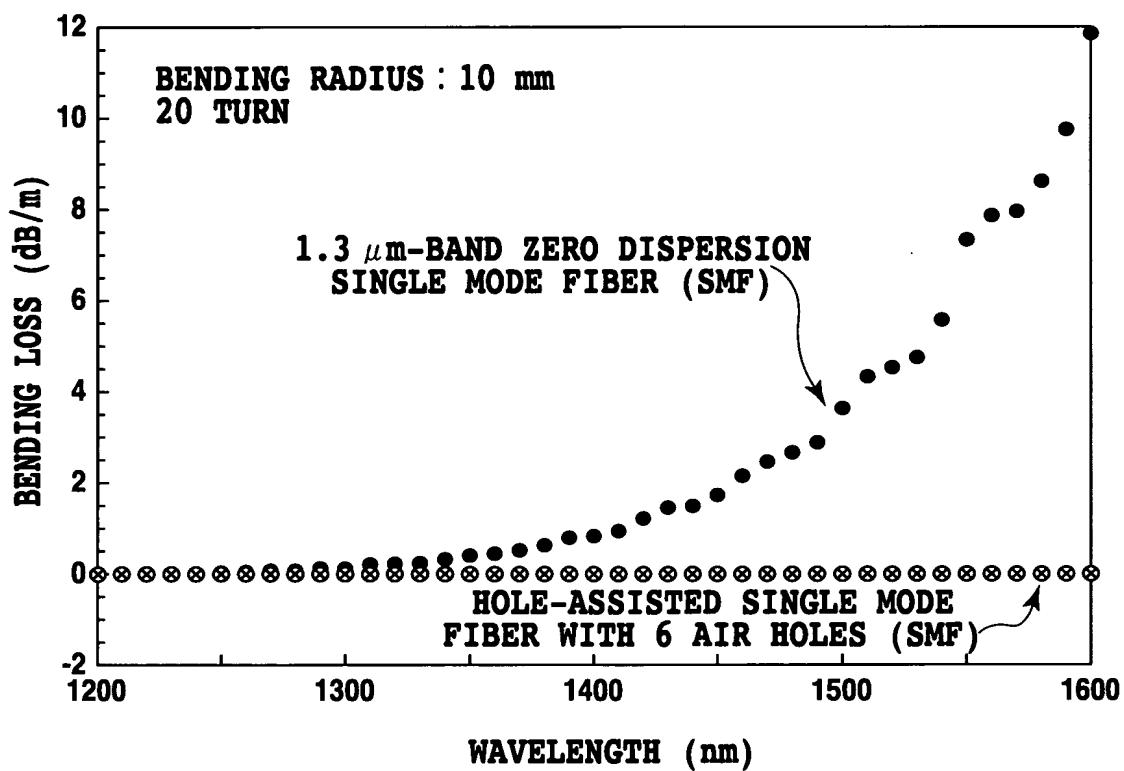
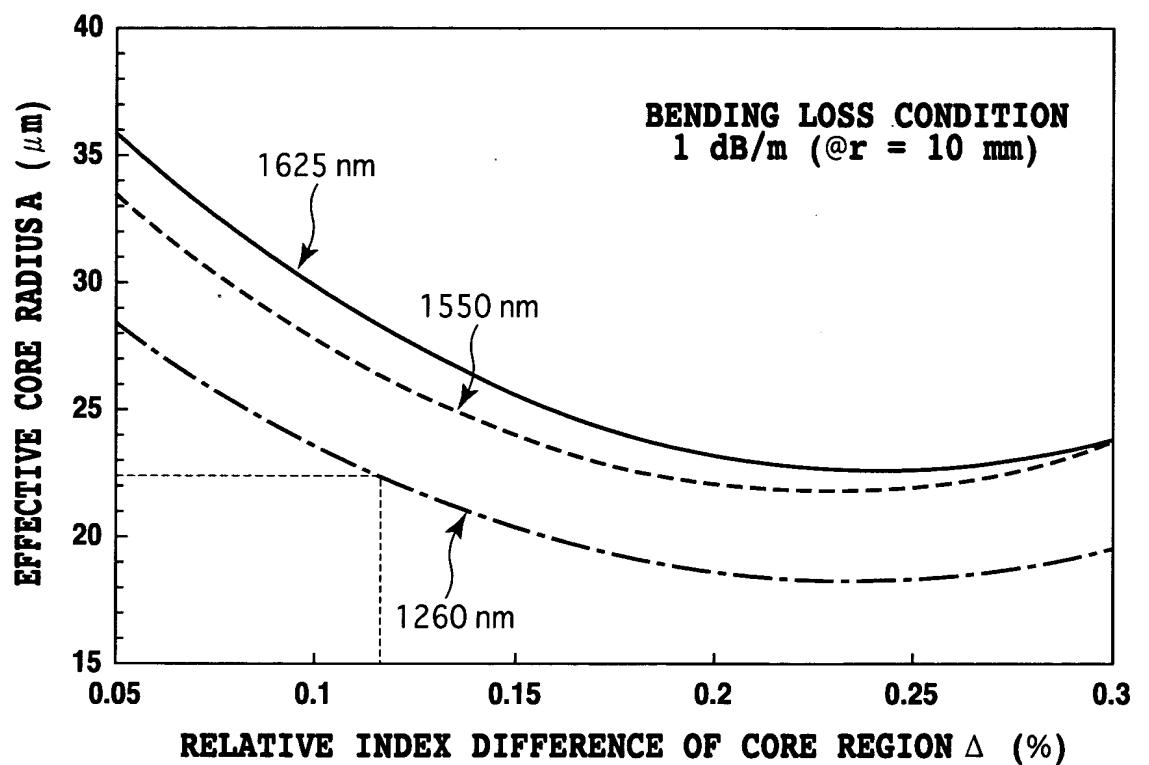


FIG.7

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NUMBER OF AIR  
HOLES : SIX  
 $d = 3 \times r_1$   
 $r_2 = 0.3 \times r_1$

FIG.8

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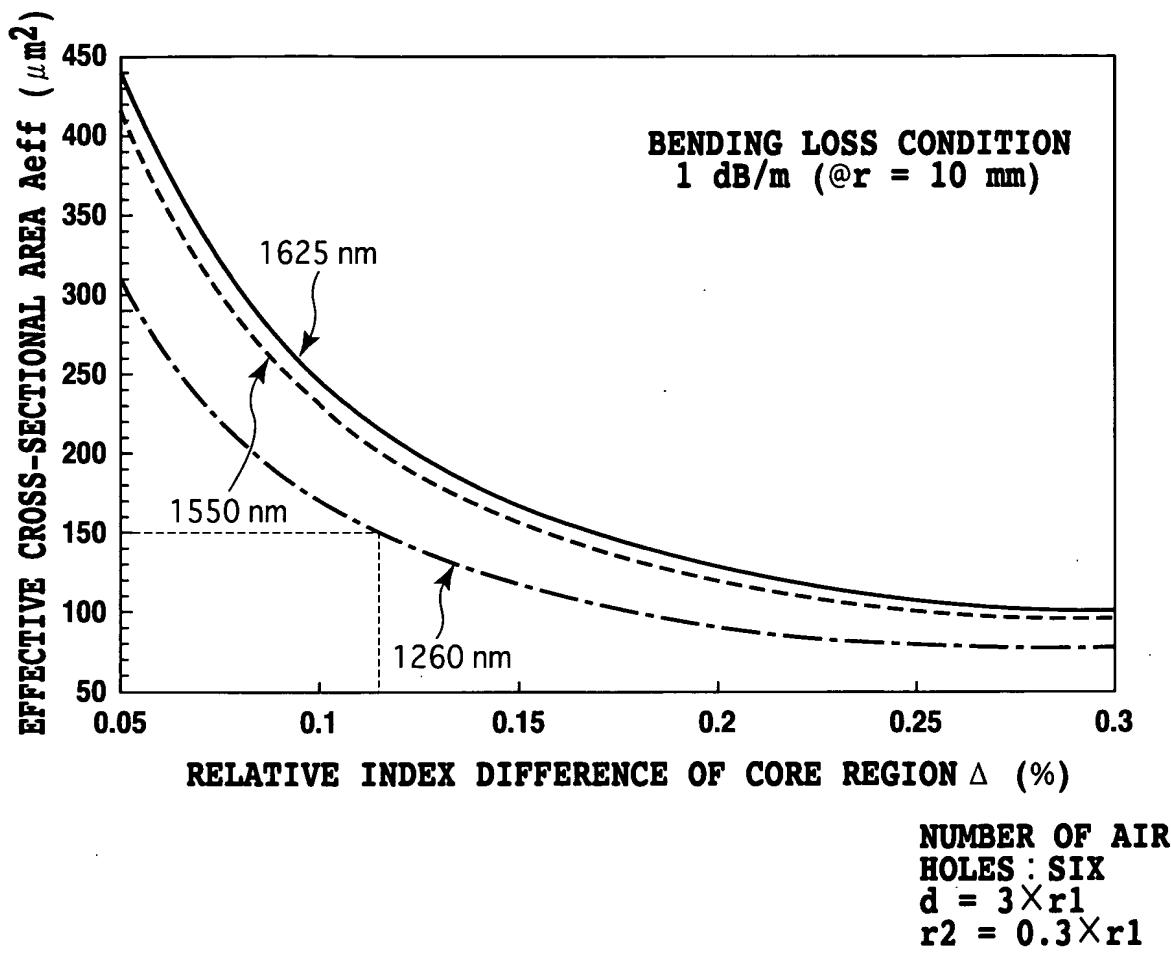


FIG.9

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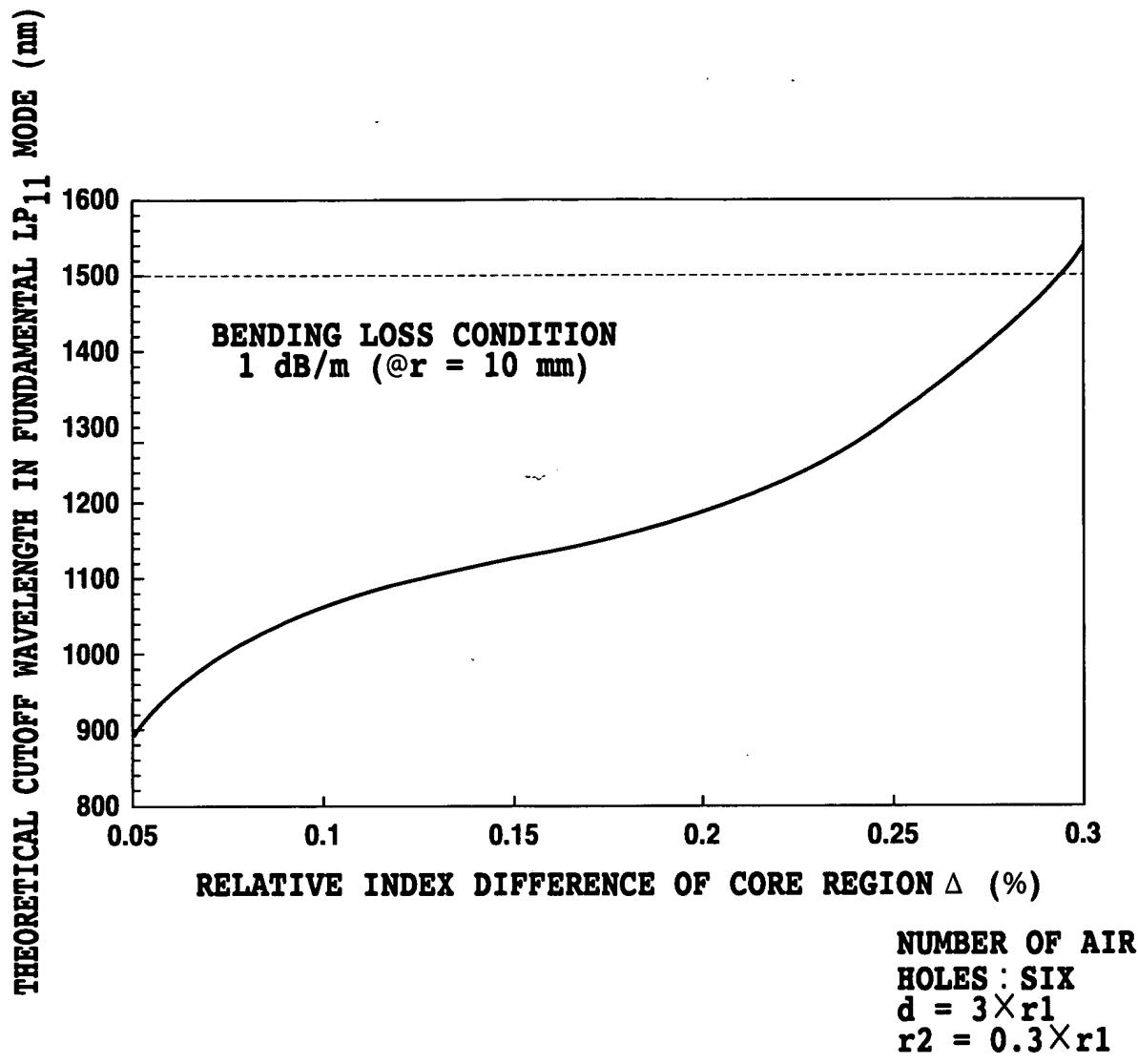


FIG.10